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Tainan awaits high-purity ammonia plant

Showa Denko KK (SDK) will produce high-purity ammonia in Taiwan from May 2005. SDK's new subsidiary plant located in Tainan will produce 1,000tpa, some of which will be used in the production of GaN LEDs.

SDK expects world demand for high-purity ammonia to increase from around 3,000 tons in 2004 to 6,000 tons by 2008. Of this 100% growth, at least 10% is expected to come from increased LED production, mainly in Japan and Taiwan.

In Japan, SDK already produces approximately 1,000tpa of high-purity ammonia. Most is exported to Taiwan, where the company claims a market share of about 50%.

Taiwan Showa Chemicals Manufacturing Co Ltd, SDK's new subsidiary, will be capitalised at NT$70m (approx. ¥228m) and have its head office in Taipei. SDK will own 80% of the company, while Young Sun Chemtrade Co Ltd and Showa Specialty Gas (Taiwan) Co Ltd will own 10% each. The new company will adopt SDK's purification technology and quality control system.

SDK's current business plan, the "Sprout Project," sees its semiconductor-processing materials operation as a strategic growth business. Annual sales of semiconductor-processing materials, including specialty gases, are expected to increase to around ¥50 billion by 2010, from ¥20 billion at present.

Patents for August

August Technology Corporation, a supplier of inspection, metrology and defect analysis equipment, has received two additional U. S. patents to cover its inspection systems. US patent number 6,765,666, and its Taiwan counterpart, patent number 167,194, covers August Technology's bump inspection technology, which couples 2D and 3D inspection by locating features through 2D inspection, and using the 2D feature data for optimal 3D inspection.

Epi wafer manufacturer collaborates for VCSEL Results

EpiWorks Inc, a manufacturer of compound semiconductor epitaxial wafers, and Professor Kent Choquette, a faculty member at the University of Illinois at Urbana-Champaign, announced a new VCSEL result developed in a collaborative research agreement.

"VCSELs are key optical devices in gigabit ethernet networking systems as well as many emerging applications, such as printing, medical, bar code scanning and display applications. The primary goal of this work is to implement novel designs and explore new capabilities and applications. We have successfully completed the first phase of the programme which is the implementation of a 'n-up' 850 nm VCSEL," said Prof Kent Choquette, principle investigator responsible for the project within the Micro and Nanotechnology Laboratory at University of Illinois.

"In the next stage we plan to use this capability to demonstrate more complex device designs."

The 850 nm VCSEL performance parameters include Ith= 800μA, Power = 6 mW @ 10 mA, for an oxide confined 5 μm diameter device.

"We are extremely pleased to have successfully reached the first milestone of developing a VCSEL capability through this collaboration," said Dr. Xiuling Li, EpiWorks' manager of R&D.

"VCSELs are challenging devices to manufacture, but we are looking forward pushing the technology to the next level."

Versaline chosen for MESA project

Unaxis Wafer Processing will supply Sandia National Laboratories with twelve Versaline systems for III-V and MEMS applications at Sandia's Microsystems and Engineering Sciences Applications (MESA) facility in Albuquerque, New Mexico.

Versaline's modular system is built on a decade of dry etching system experience and specialises in advanced ICP, RIE, PECVD and PVD solutions for LEDs, HBTs, HEMTs, optoelectronics, and MEMS applications.

Ron Briggs, operations team leader at Sandia's Compound Semiconductor Research Laboratory, says: "For more than a decade, Sandia and Unaxis Wafer Processing have enjoyed a collaborative relationship which has resulted in the development of state-of-the-art technologies in compound semiconductors and MEMS.

We are pleased to be able to continue this relationship with the purchase of the new Versaline systems for our MESA MicroFab facility."

Metrology patent granted

Bede, a supplier of X-ray metrology tools, has been granted US patent number 6,782,076 for the technology used in its digital wafer defect imaging system, BedeScan. A European patent for the same technology is pending.

BedeScan uses X-ray diffraction to non-destructively image structural defects on semiconductor wafers, identifying lattice defects, such as slip and edge. Other such optically-based wafer scanners do not typically image such defects, according to Bede.

The tool is automated, fully digital and compatible with high volume semiconductor manufacturing processes. Whole 300 mm wafers can be imaged in less than 30 minutes, with selected regions, such as wafer edges, being imaged in a matter of minutes.